

DETAILED ACTION

Claim Objections

Claim 1 is objected to because of the following informalities: The representations of “a)” and “b)” are inconsistency within claim 1 and the rest of the claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Melzer et al, EP0230977. Applicants claim kaolin, sheet silicates, chalk, calcium sulfate, barium sulfate, talc, titanium dioxide, alumina, silica, satin white, cellulose, groundwood, urea/formaldehyde pigments, melamine/formaldehyde pigments, starch and/or crosslinked starch are used as the

finely divided, inert solids (a). Melzer et al. teach the use of kaolin, layered silicates, chalk, calcium sulfate, barium sulfate, talcum powder, titania, alumina, silicon dioxide, satin white, micro-crystalline cellulose, urea and melamine formaldehyde pigments and/or crosslinked starch as the finely divided, inert solids in the antifoam (claim 3). Although Melzer et al. fail to teach the use of starch and groundwood they are similar to crosslinked starch as they are in group of polysaccharide and function as finely divided inert solid.

Claims 1-3 and 5-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melzer et al, EP0230977, and further in view of Dyllick-Brenzinger et al., WO00/44470, equivalent of US patent 6864292.

Regarding claims 1 and 9, the applicants claim an emulsifier-free antifoam obtained by mixing (a) from 80 to 99% by weight of at least one finely divided, virtually water-insoluble, inert solid, while Melzer et al. disclose the use of 5-30% of inert solid (Description page 2, lines 25-41). The applicants claim an emulsifier-free antifoam obtained by mixing (b) from 1 to 20% by weight of at least one hydrophobic, organic compound which has an antifoam action and is solid at room temperature in the absence of a solvent, Melzer et al. disclose the use of C₁₂- to C₂₆- alcohol, distillation residues, those with the production of alcohols with a higher carbon number by oxosynthesis or after the Ziegler method (Description lines 29-30). The applicants claim compound (b) has a mean particle size of from 0.5 to 15 µm. Dyllick-Brenzinger et al., US6864292, disclose the mixture of (b) in the instant claim in a shear gradient with Sonotrode has mean particle size of from 0.04 to 15 µm (column 21, Table 2 Example 10-14). Although Melzer et al. failed to disclose the term 'emulsion-free antifoam' and the particle size of (b), it

would have been obvious to one of ordinary skilled in the art at the time of the applicants' invention to combine the teachings from Melzer et al., i.e. components (a) and (b), and Dyllick-Brenzinger et al., US6864292, to obtain the emulsion-free antifoam with (b) has a mean particle size of from 0.5 to 15 μm . Both Melzer et al and Dyllick-Brenzinger et al., US6864292, failed to teach the antifoam composition weight % as in instant claim 1. It would have been obvious to one of ordinary skilled in the art at the time of the applicants' invention to combine the teachings of the antifoam systems in Melzer et al and Dyllick-Brenzinger et al., US6864292, and alter the composition in order to optimize weight % of the inert solid and hydrophobic compound according to application for their intended or subsequence use.

Regarding claims 2 and 3: the applicants claim mixing of the components (a) and (b) is effected in an extruder or kneader and a fluidized bed, while Melzer et al. disclose use of an agitated container for mixing. Since the mixing of the component (a) and (b) in both situation does not involve chemical reaction, they would obviously yield the same or similar antifoam. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melzer et al, EP0230977, and further in view of Dyllick-Brenzinger et al., WO00/44470, equivalent of US patent 6864292.

Regarding claim 5: applicants claim C₁₂- to C₂₆-alcohol, distillation residue obtained in the preparation of alcohols of >10 carbon atoms by oxo synthesis or by the Ziegler process, alkoxyated alcohols of 12 to 26 carbon atoms, 3-thiaalkan-1-ols, 3-thiaoxaalkan-1-ols, 3-thiadioxalkaan-1-ols and esters of said 3-thiaalkanols, 3-thiaoxaalkanols and thiadioxadialkanols are used as the hydrophobic compounds (b) having an antifoam action. Melzer et al. teach the use of C₁₂- to C₂₆-alcohol, distillation residues, those with a higher carbon by oxosynthesis or after the Ziegler method available, still the alkoxyated (claim 1), while Dyllick-Brenzinger et al., US 6864292, disclose the use of 3-Thiaalkan-1-ols, 3-thiaoxaalkan-1-ols, 3-thiadioxalkaan-1-ols, esters of said compounds or mixtures thereof, either alone or in combination with known compounds effective as antifoams and/or deaeraters, can form the hydrophobic phase of antifoams and/or deaeraters (column 3 lines 52-56). Although Melzer et al. failed to teach the use of alkoxyated alcohols of 12 to 26 carbon atoms, but it is in the scope of the alkoxyated alcohols.

Regarding claim 6: applicants claim (i) a C₁₂- to C₂₆-alcohol, distillation residue obtained in the preparation of alcohols of >10 carbon atoms by oxo synthesis or by the Ziegler process, alkoxyated alcohols of 12 to 26 carbon atoms, 3-thiaalkan-1-ols, 3-thiaoxaalkanols and thiadioxalkaanols. This part of the claim is rejected as discuss above. Applicants claim (ii) at least one compound selected from the group consisting of the glyceryl esters of fatty acids having at least 10 carbon atoms in the molecule, C₁₂- to C₃₀-alcohols, alkoxyated alcohols, esters of sugar alcohols having at least 4 OH groups or at least 2 OH groups and at least one intramolecular ether bond and a fatty acid having at least 20 carbon atoms in the molecule, fatty acid esters of C₁₂- to C₂₂-carboxylic acids with monohydric to trihydric alcohols, ketones having

melting points above 45°C., the polyglyceryl esters which are obtainable by at least 20% esterification of polyglycerols which have at least 2 glycerol units with at least one C₁₂- to C₃₆-fatty acid, reaction products of mono- and diglycerides with dicarboxylic acids, reaction products of glycerol with dicarboxylic acids, which reaction products have been esterified with at least one C₁₂- to C₃₆-fatty acid, polyethylene waxes, natural waxes, hydrocarbons having boiling points above 200°C. and mixtures of said compounds are used as component (b). Dyllick-Brenzinger et al., US 6864292, disclose the use of at least one compound selected from the group consisting of the glyceryl esters of fatty acids having at least 10 carbon atoms in the molecule, C₁₂- to C₃₀-alcohols, alkoxyated alcohols, esters of sugar alcohols having at least 4 OH groups or at least 2 OH groups and at least one intramolecular ether bond and a fatty acid having at least 20 carbon atoms in the molecule, fatty acid esters of C₁₂- to C₂₂-carboxylic acids with monohydric to trihydric alcohols, ketones having melting points above 45°C., the polyglyceryl esters which are obtainable by at least 20% esterification of polyglycerols which have at least 2 glycerol units with at least one C₁₂- to C₃₆-fatty acid, reaction products of mono- and diglycerides with dicarboxylic acids, reaction products of glycerol with dicarboxylic acids, which reaction products have been esterified with at least one C₁₂- to C₃₆-fatty acid, polyethylene waxes, natural waxes, hydrocarbons having boiling points above 200°C and finely divided inert solids and mixtures of said compounds (claim12(b2)).

Regarding claims7and 8: applicant claim crosslinked starch and/or cellulose fibers are used as the finely divided, inert solids, Melzer et al. disclose the use of micro-crystalline cellulose and crosslinked starch (claim 1). Applicant claim at least one C₁₂- to C₃₀-alcohol, a polyglyceryl ester of a carboxylic acid of 18 to 36 carbon atoms and further organic esters and/or

amides having an antifoam action. Dyllick-Brenzinger et al., US 6864292, disclose the use of C₁₂- to C₃₀- alcohol and fatty esters of C₁₂- to C₂₂-carboxylic acids with monohydric to trihydric alcohols (claim 3 (b2) and (b)), although the carbon chain for the ester is shorter but is well overlapped with instant claim.

Claims 10 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melzer et al, EP0230977. Melzer et al discloses the use of 15.5 parts of a mixture from glycerin triester, a fat alcohol mixture and mineral oil mixed on a temperature 70°C heated with 15 parts of a microcrystalline cellulose with particle middle size of 1 µm. The mixture is then dispersed in an aqueous solution, resulted an oil-in-water emulsion (Example 7). Melzer et al discloses the use of 15.5 parts of a mixture from glycerin triester, a fat alcohol mixture and mineral oil homogenized on a temperature 80°C with 15 parts of a commercial crosslinked thickener with particle middle size of 5 below 5 µm. The mixture is then dispersed in an aqueous solution, resulted an emulsion (Example 8). Dyllick-Brenzinger et al., US6864292, disclose the mixture of (b) in the instant claim in a shear gradient with Sonotrode has mean particle size of from 0.6 to 8 µm (column 21, Table 2 Example 10).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dyllick-Brenzinger et al., US6864292. Dyllick-Brenzinger et al., US6864292, teaches using stainless steel reactor and high pressure homogenizer in his patent as the same of using extruder or kneader to mix the antifoam, and achieve the same objectives, such as smaller particle size and/or homogeneous mixture.

Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). When the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process. See In re Marosi, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) and In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP § 2113. When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Cheng Wang whose telephone number is (571)270-5459. The examiner can normally be reached on Monday to Friday w/alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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